AMENDMENTS TO THE CLAIMS

Without prejudice, please amend the claims as reflected in the following listing of claims, which will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Original) A method of supplying energy to an energy bus in communication with an energy generating device and with a regenerative braking system in a hybrid electric vehicle, the method comprising controlling power supplied by the energy generating device to the energy bus, in response to a braking signal indicative of user brake actuation.

2. (Original) The method of claim **1** wherein controlling power comprises controlling power supplied by an auxiliary power unit (APU) of the vehicle.

3. (Original) The method of claim **2** wherein controlling power comprises controlling a current supplied by a generator.

4. (Original) The method of claim **2** wherein controlling power comprises controlling a current supplied by a fuel cell.

5. (Original) The method of claim **1** wherein controlling comprises commencing said controlling no later than a time at which the regenerative braking system of the vehicle commences supplying energy to the energy bus.

6. (Original) The method of claim **1** wherein controlling comprises reducing said power supplied by the energy generating device to the energy bus.

7. (Original) The method of claim **6** further comprising increasing power supplied by the regenerative braking system of the vehicle to the energy bus, while reducing said power supplied by the energy generating device to the energy bus.

8. (Original) The method of claim **7** wherein increasing power comprises increasing a regenerative braking torque applied by the regenerative braking system until a desired regenerative braking torque is achieved.

9. (Original) The method of claim **1** further comprising identifying a total desired braking torque in response to the braking signal.

10. (Original) The method of claim **9** further comprising identifying a maximum available regenerative braking torque.

11. (Original) The method of claim **10** further comprising identifying a maximum desired regenerative braking torque, in response to said total desired braking torque and said maximum available regenerative braking torque.

12. (Original) The method of claim **11** wherein identifying said maximum desired regenerative braking torque comprises setting said maximum desired regenerative braking torque equal to the lesser of:

(a) said total desired braking torque;

(b) said maximum available regenerative braking torque; and

(c) a torque equivalent of a desired current drain from the energy bus, said desired current drain comprising a desired charging current for charging an energy storage system (ESS) in communication with the energy bus.

13. (Original) The method of claim **12** further comprising identifying, as said desired charging current, a maximum allowable charging current for charging the ESS.

14. (Original) The method of claim **11** wherein controlling comprises setting a desired power output of the energy generating device, in response to said maximum desired regenerative braking torque.

15. (Original) The method of claim **14** wherein setting said desired power output comprises setting a desired current level of an auxiliary power unit (APU) of the vehicle.

16. (Original) The method of claim **15** wherein setting said desired current level of the APU comprises setting said desired current level equal to the lesser of:

(a) a present desired current level of the APU; and

(b) a desired current drain from the energy bus comprising a desired charging current for charging an energy storage system (ESS) in communication with the energy bus, minus a current equivalent of said maximum desired regenerative braking torque.

17. (Original) The method of claim **16** further comprising identifying, as said desired charging current, a maximum allowable charging current for charging the ESS.

18. (Original) The method of claim **11** further comprising setting a present desired regenerative braking torque of a regenerative braking system of the vehicle, in response to the maximum desired regenerative braking torque and the power supplied by the energy generating device to the energy bus.

19. (Original) The method of claim **18** wherein setting said present desired regenerative braking torque comprises setting said present desired regenerative braking torque equal to the lesser of:

(a) said maximum desired regenerative braking torque; and

(b) a torque equivalent of:

(i) a desired current drain from the energy bus, said desired current drain comprising a desired charging current for charging an energy storage system (ESS) in communication with the energy bus;

minus

(ii) an actual current supplied by the energy generating device to the energy bus.

20. (Original) The method of claim **19** further comprising identifying, as said desired charging current, a maximum allowable charging current for charging the ESS.

21. (Original) The method of claim **18** further comprising setting a friction braking torque of a friction braking system of the vehicle.

22. (Original) The method of claim **21** wherein setting said friction braking torque comprises setting said friction braking torque equal to a difference between said present desired regenerative braking torque and said total desired braking torque.

23. (Original) The method of claim **1** wherein controlling comprises controlling energy contributions onto the energy bus from the energy generating device and from a regenerative braking system of the vehicle respectively, to prevent said contributions from exceeding a desired total energy contribution.

24. (Original) An apparatus for supplying energy to an energy bus in communication with an energy generating device and with a regenerative braking system in a hybrid electric vehicle, the apparatus comprising a processor circuit configured to control power supplied by the energy generating device to the energy bus, in response to a braking signal indicative of user brake actuation.

25. (Original) The apparatus of claim **24** wherein said processor circuit is configured to control said power by controlling power supplied by an auxiliary power unit (APU) of the vehicle.

26. (Original) The apparatus of claim **25** wherein said processor circuit is configured to control said power by controlling a current supplied by a generator.

27. (Original) The apparatus of claim **25** wherein said processor circuit is configured to control said power by controlling a current supplied by a fuel cell.

28. (Original) The apparatus of claim **24** wherein said processor circuit is configured to commence said controlling no later than a time at which the regenerative braking system of the vehicle commences supplying energy to the energy bus.

29. (Original) The apparatus of claim **24** wherein said processor circuit is configured to control said power by reducing said power supplied by the energy generating device to the energy bus.

30. (Original) The apparatus of claim **29** wherein said processor circuit is configured to increase power supplied by a regenerative braking system of the vehicle to the energy bus, while reducing said power supplied by the energy generating device to the energy bus.

31. (Original) The apparatus of claim **30** wherein said processor circuit is configured to increase a regenerative braking torque applied by the regenerative braking system until a desired regenerative braking torque is achieved.

32. (Original) The apparatus of claim **24** wherein said processor circuit is configured to identify a total desired braking torque in response to the braking signal.

33. (Original) The apparatus of claim **32** wherein said processor circuit is configured to identify a maximum available regenerative braking torque.

34. (Original) The apparatus of claim **33** wherein said processor circuit is configured to identify a maximum desired regenerative braking torque, in response to said total desired braking torque and said maximum available regenerative braking torque.

35. (Original) The apparatus of claim **34** wherein said processor circuit is configured to set said maximum desired regenerative braking torque equal to the lesser of:

(a) said total desired braking torque;

(b) said maximum available regenerative braking torque; and

(c) a torque equivalent of a desired current drain from the energy bus, said desired current drain comprising a desired charging current for charging an energy storage system (ESS) in communication with the energy bus.

36. (Original) The apparatus of claim **35** wherein said processor circuit is configured to identify, as said desired charging current, a maximum allowable charging current for charging the ESS.

37. (Original) The apparatus of claim **34** wherein said processor circuit is configured to control said power by setting a desired power output of the energy generating device, in response to said maximum desired regenerative braking torque.

38. (Original) The apparatus of claim **37** wherein said processor circuit is configured to set said desired power output by setting a desired current level of an auxiliary power unit (APU) of the vehicle.

39. (Original) The apparatus of claim **38** wherein said processor circuit is configured to set said desired current level of the APU equal to the lesser of:

(a) a present desired current level of the APU; and

(b) a desired current drain from the energy bus comprising a desired charging current for charging an energy storage system (ESS) in communication with the energy bus, minus a current equivalent of said maximum desired regenerative braking torque.

40. (Original) The apparatus of claim **39** wherein said processor circuit is configured to identify, as said desired charging current, a maximum allowable charging current for charging the ESS.

41. (Original) The apparatus of claim **34** wherein said processor circuit is configured to set a present desired regenerative braking torque of a regenerative braking system of the vehicle, in response to the maximum desired regenerative braking torque and the power supplied by the energy generating device to the energy bus.

42. (Original) The apparatus of claim **41** wherein said processor circuit is configured to set said present desired regenerative braking torque equal to the lesser of:

(a) said maximum desired regenerative braking torque; and

(b) a torque equivalent of:

(i) a desired current drain from the energy bus, said desired current drain comprising a desired charging current for charging an energy storage system (ESS) in communication with the energy bus;

minus

(ii) an actual current supplied by the energy generating device to the energy bus.

43. (Original) The apparatus of claim **42** wherein said processor circuit is configured to identify, as said desired charging current, a maximum allowable charging current for charging the ESS.

44. (Original) The apparatus of claim **41** wherein said processor circuit is configured to set a friction braking torque of a friction braking system of the vehicle.

45. (Original) The apparatus of claim **44** wherein said processor circuit is configured to set said friction braking torque equal to a difference between the present desired regenerative braking torque and the total desired braking torque.

46. (Original) The apparatus of claim **24** wherein said processor circuit is configured to control energy contributions onto the energy bus from the energy generating device and from a regenerative braking system of the vehicle respectively, to prevent said contributions from exceeding a desired total energy contribution.

47. (Original) A system comprising the apparatus of claim **24** and further comprising the energy generating device, said energy generating device being in communication with said processor circuit and with the energy bus.

48. (Original) The system of claim **47** wherein said energy generating device comprises an auxiliary power unit (APU) of the vehicle.

49. (Original) The system of claim **48** wherein said APU comprises a generator.

50. (Original) The system of claim **48** wherein said APU comprises a fuel cell.

51. (Original) The system of claim **47** further comprising the energy bus.

52. (Original) The system of claim **47** further comprising the regenerative braking system, the regenerative braking system being in communication with said processor circuit and with the energy bus.

53. (Original) The system of claim **52** wherein said processor circuit is configured to increase power supplied by said regenerative braking system to the energy bus, while reducing said power supplied by said energy generating device to the energy bus.

54. (Original) The system of claim **52** further comprising an energy storage system (ESS) in communication with the energy bus.

55. (Original) An apparatus for supplying energy to an energy bus in communication with energy generating means and with regenerative braking means in a hybrid electric vehicle, the apparatus comprising:

means for receiving a braking signal indicative of user brake actuation; and

means for controlling power supplied by the energy generating means to the energy bus, in response to the braking signal.

56. (Original) The apparatus of claim **55** wherein said means for controlling power comprises means for controlling power supplied by an auxiliary power unit (APU) of the vehicle.

57. (Original) The apparatus of claim **55** wherein said means for controlling comprises means for commencing said controlling no later than a time at which the regenerative braking means of the vehicle commences supplying energy to the energy bus.

58. (Original) The apparatus of claim **55** wherein said means for controlling comprises means for reducing said power supplied by the energy generating means to the energy bus.

59. (Original) The apparatus of claim **58** further comprising means for increasing power supplied by a regenerative braking means of the vehicle to the energy bus, while said means for reducing is reducing the power supplied by the energy generating means to the energy bus.

60. (Original) The apparatus of claim **59** wherein said means for increasing power comprises means for increasing a regenerative braking torque applied by the regenerative braking means until a desired regenerative braking torque is achieved.

61. (Original) The apparatus of claim **55** further comprising means for identifying a total desired braking torque in response to the braking signal.

62. (Original) The apparatus of claim **61** further comprising means for identifying a maximum available regenerative braking torque.

63. (Original) The apparatus of claim **62** further comprising means for identifying a maximum desired regenerative braking torque, in response to said total desired braking torque and said maximum available regenerative braking torque.

64. (Original) The apparatus of claim **63** wherein said means for controlling comprises means for setting a desired power output of the energy generating means, in response to the maximum desired regenerative braking torque.

65. (Original) The apparatus of claim **64** wherein said means for setting said desired power output comprises means for setting a desired current level of an auxillary power unit (APU) of the vehicle.

66. (Original) The apparatus of claim **63** further comprising means for setting a present desired regenerative braking torque of a regenerative braking means of the vehicle, in response to the maximum desired regenerative braking torque and the power supplied by the energy generating device to the energy bus.

67. (Original) The apparatus of claim **66** further comprising means for setting a friction braking torque of a friction braking means of the vehicle.

68. (Original) The apparatus of claim **67** wherein said means for setting the friction braking torque comprises means for setting the friction braking torque equal to a difference between said present desired regenerative braking torque and said total desired braking torque

69. (Original) The apparatus of claim **55** wherein said means for controlling comprises first means for controlling a first energy contribution onto the energy bus from the energy generating means, and further comprising second means for controlling a second energy contribution onto the energy bus from a regenerative braking means of the vehicle, wherein said first and second means for controlling cooperate to prevent said contributions from exceeding a desired total energy contribution.

70. (Original) A system comprising the apparatus of claim **55** and further comprising said energy generating means for generating said power supplied by said energy generating means to the energy bus, said energy generating means being in communication with said means for reducing power and with the energy bus.

71. (Original) The system of claim **70** wherein said energy generating means comprises an auxiliary power unit (APU) of the vehicle.

72. (Original) The system of claim **70** further comprising the regenerative braking means for regeneratively braking the vehicle, said regenerative braking means being in communication with the energy bus.

73. (Original) The system of claim **72** further comprising an energy storage means for storing energy, in communication with the energy bus.

74. (Original) A computer readable medium providing codes for directing a processor circuit to control power supplied by an energy generating device to an energy bus in communication with the energy generating

device and with a regenerative braking system in a hybrid electric vehicle, in response to a braking signal indicative of user brake actuation.

75. (Original) A signal comprising code segments for directing a processor circuit to control power supplied by an energy generating device to an energy bus in communication with the energy generating device and with a regenerative braking system in a hybrid electric vehicle, in response to a braking signal indicative of user brake actuation.

76. (Currently amended) A method of supplying energy to an energy bus in a hybrid electric vehicle, the method comprising controlling energy contributions onto the energy bus from an energy generating device and from a regenerative braking system respectively, ~~to prevent~~ wherein controlling comprises preventing said contributions from exceeding a desired total energy contribution.

77. (Original) The method of claim **76** wherein controlling comprises reducing power supplied by the energy generating device to the energy bus.

78. (Original) The method of claim **76** wherein controlling comprises reducing power supplied by the energy generating device to the energy bus, while increasing power supplied by the regenerative braking system to the energy bus.

79. (Original) The method of claim **78** wherein increasing power comprises increasing a regenerative braking torque applied by the regenerative braking system until a desired regenerative braking torque is achieved.

80. (Original) The method of claim **76** further comprising identifying a maximum desired regenerative braking torque to be applied by the regenerative braking system.

81. (Original) The method of claim **80** wherein controlling comprises setting a desired energy contribution of the energy generating device, in response to the maximum desired regenerative braking torque.

82. (Original) The method of claim **80** further comprising setting a present desired regenerative braking torque of the regenerative braking system, in response to the maximum desired regenerative braking torque and an actual energy contribution supplied by the energy generating device to the energy bus.

83. (Original) The method of claim **76** wherein controlling comprises controlling power supplied by the energy generating device to the energy bus, in response to a braking signal indicative of user brake actuation.

84. (Currently amended) An apparatus for supplying energy to an energy bus in a hybrid electric vehicle, the apparatus comprising a processor circuit configured to control energy contributions onto the energy bus from an energy generating device and from a regenerative braking system respectively, wherein said processor circuit is configured to prevent said contributions from exceeding a desired total energy contribution.

85. (Original) The apparatus of claim **84** wherein said processor circuit is configured to reduce power supplied by the energy generating device to the energy bus.

86. (Original) The apparatus of claim **84** wherein said processor circuit is configured to reduce power supplied by the energy generating device to the energy bus, while increasing power supplied by the regenerative braking system to the energy bus.

87. (Original) The apparatus of claim **86** wherein said processor circuit is configured to increase a regenerative braking torque applied by the

regenerative braking system until a desired regenerative braking torque is achieved.

88. (Original) The apparatus of claim **84** wherein said processor circuit is configured to identify a maximum desired regenerative braking torque to be applied by the regenerative braking system.

89. (Original) The apparatus of claim **88** wherein said processor circuit is configured to set a desired energy contribution of the energy generating device, in response to the maximum desired regenerative braking torque.

90. (Original) The apparatus of claim **88** wherein said processor circuit is configured to set a present desired regenerative braking torque of the regenerative braking system, in response to the maximum desired regenerative braking torque and an actual energy contribution supplied by the energy generating device to the energy bus.

91. (Original) The apparatus of claim **84** wherein said processor circuit is configured to control power supplied by the energy generating device to the energy bus, in response to a braking signal indicative of user brake actuation.

92. (Original) An apparatus for supplying energy to an energy bus in a hybrid electric vehicle, the apparatus comprising:

first means for controlling a first energy contribution onto the energy bus from energy generating means; and

second means for controlling a second energy contribution onto the energy bus from regenerative braking means,

wherein said first and second means for controlling cooperate to prevent said contributions from exceeding a desired total energy contribution.

93. (Original) The apparatus of claim **92** wherein said first means for controlling comprises means for reducing power supplied by the energy generating means to the energy bus.

94. (Original) The apparatus of claim **92** wherein said second means for controlling comprises means for increasing power supplied by the regenerative braking means to the energy bus, and wherein said first means for controlling comprises means for reducing power supplied by the energy generating means to the energy bus, while said second means for controlling is increasing said power supplied by the regenerative braking means.

95. (Original) The apparatus of claim **94** wherein said means for increasing power comprises means for increasing a regenerative braking torque applied by the regenerative braking means until a desired regenerative braking torque is achieved.

96. (Original) The apparatus of claim **92** further comprising means for identifying a maximum desired regenerative braking torque to be applied by the regenerative braking means.

97. (Original) The apparatus of claim **96** wherein said first means for controlling comprises means for setting a desired energy contribution of the energy generating means, in response to the maximum desired regenerative braking torque.

98. (Original) The apparatus of claim **96** wherein said second means for controlling comprises means for setting a present desired regenerative braking torque of the regenerative braking means, in response to the maximum desired regenerative braking torque and an actual energy contribution supplied by the energy generating means to the energy bus.

99. (Original) The apparatus of claim **92** wherein said first means for controlling comprises means for reducing power supplied by the energy

generating means to the energy bus, in response to a braking signal indicative of user brake actuation.

100. (Currently amended) A computer readable medium providing codes for directing a processor circuit to control energy contributions onto an energy bus in a hybrid electric vehicle from an energy generating device and from a regenerative braking system respectively, wherein said codes direct said processor circuit to prevent said contributions from exceeding a desired total energy contribution.

101. (Currently amended) A signal comprising code segments for directing a processor circuit to control energy contributions onto an energy bus in a hybrid electric vehicle from an energy generating device and from a regenerative braking system respectively, wherein said code segments direct said processor circuit to prevent said contributions from exceeding a desired total energy contribution.